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EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,138

Applicant(s)

ITO ET AL.

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-6, 8-9. 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Faroudja et al (US Patent No. 6,222,589 B1).

In considering claim 1, Faroudja et al discloses all the claimed subject matter, note 1) the claimed incorporating input frame pictures to be displayed on a display device, on the basis of an input picture signal and an input synchronizing signal which is synchronized with the input picture signal is met by the input luminance (Y) and chrominance (U/V) of an interlaced nominally 50 Hz field-rate television signal (such as a PAL, SECAM, 50 Hz NTSC, 50 Hz HDTV or 50 Hz monochrome television) and the sync stripper 4 (Fig. 1, col. 3, line 58 to col. 4, line 23), 2) the claimed recording the incorporated input frame pictures in an input frame memory is met by the two-frame ("double frame buffer") memory 8 (Figs. 1 and 2, col. 6, line 38 to col. 8, line 59), and 3) the claimed producing output frame pictures from the input frame pictures, which have been recorded in the input frame memory, by producing an interpolated picture or inserting a black

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raster picture or thinning out the input frame pictures, between input frame pictures corresponding to a picture information of the input frame picture to be displayed, on the basis of the picture information and the input synchronizing signal and an output synchronizing signal is met by the interpolated output luminance (Y) and chrominance (U/V) of the progressive signal from the two-frame buffer 8 (Figs. 1 and 2, col. 6, line 38 to col. 8, line 59).

In considering claim 2, Faroudja discloses all the claimed subject matter, note 1) the claimed wherein the production of the output frame pictures comprising: comparing the refresh rate of the input frame pictures with the refresh rate of the output frame pictures is met by the collision detector 14 (Fig. 1, col. 6, line 66 to col. 7, line 40), 2) the claimed outputting the input frame pictures as the output frame picture, or outputting the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the input frame pictures is equal to the refresh rate of the output frame pictures is met by the deinterlacer 2 which produces progressively-scanned video having a frame rate the same as the nominally 60 Hz interlaced field rate (Fig. 1, col. 4, line 24 to col. 6, line 22), 3) the claimed producing an interpolated picture between the input frame pictures, or outputting the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the output frame pictures is higher than the refresh rate of the input frame pictures is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate (Fig. 2A, col. 7,

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line 41 to col. 8, line 59), and 4) the claimed thinning out the input frame pictures, or producing an interpolated picture between the input frame pictures, or outputting the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the output frame pictures is lower than the refresh rate of the input frame pictures is met by the collision detector 14 which causes the input frame to be skip when the output frame rate is slower than the input frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59).

In considering claim 3, Faroudja et al disclose all the limitations of the instant invention as discussed in claim 1 above, except for providing the claimed wherein the picture information includes information which indicates whether the picture to be displayed is a moving picture or a still picture, and the method further comprises discriminating whether the picture to be displayed is a moving picture or a still picture is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 4, Faroudja et al discloses all the claimed subject matter, note 1) the claimed wherein the discriminating comprises: incorporating frame pictures to be displayed, at regular intervals on the basis of the input

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picture signal and the input synchronizing signal is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate or causes the input frame to be skip when the output frame rate is slower than the input frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59), and 2) the claimed obtaining the correlation between two fame pictures which have been continuously incorporated, the method discriminating whether the picture to be displayed is a moving picture or a still picture on the basis of the correlation result is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 5, the claimed wherein when it is determined that the picture to be displayed is a moving picture, the discriminating comprises determining whether the moving picture is in a first state in which the motion of a moving object in the moving picture is rapid, or in a second state in which the moving speed of the moving object is slower than that in the first state, on the basis of the correlation is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is

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obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 6, the claimed wherein the correlation is obtained on the basis of the difference between pixels corresponding to the continuously incorporated two frame pictures is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 7, the claimed wherein the correlation is obtained on the basis of the scalar quantity of a motion vector is met by the motion vector which is used to create new frame by interpolation (col. 12, lines 1-20).

Claim 8 is rejected for the same reason as discussed in claim 2.

Claim 9 is rejected for the same reason as discussed in claim 2 and further the claimed the display device is an impulse type display device is met by variable-frame-rate high-resolution monitor of the type typically associated with a computer (col. 2, lines 2-15).

Claim 10 is rejected for the same reason as discussed in claim 2 and further the claimed the display device is an impulse type display device is met by

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variable-frame-rate high-resolution monitor of the type typically associated with a computer (col. 2, lines 2-15).

Claim 11 is rejected for the same reason as discussed in claim 2.

In considering claim 12, the claimed wherein the interpolated picture or the black raster picture is selected in accordance with a spatial frequency and the frequency spectrum in one frame picture is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate or causes the input frame to be skip when the output frame rate is slower than the input frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59).

In considering claim 13, the claimed wherein the interpolated picture or the black raster picture is selected in accordance with the speed of a moving object in the picture to be displayed is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate or causes the input frame to be skip when the output frame rate is slower than the input frame rate accordance to the film-source detection of the deinterlacer 2 (Fig. 2A, col. 7, line 41 to col. 8, line 59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faroudja et al (US Patent No. 6,222,589 B1).

In considering claim 14, Faroudja et al discloses all the claimed subject matter, note 1) the claimed comprising a picture signal converting part converting an input picture signal, which is a picture signal for a picture to be displayed on a display device for displaying a picture while changing the picture every frame picture, and an input synchronizing signal, which is synchronized with the input picture signal, into an output picture signal, which is a picture signal for a picture suitable for the display for the display device, and an output synchronizing signal which is synchronized with the output picture signal, on the basis of picture information of the picture to be displayed on the display device, the picture signal converting part comprising: an input frame memory in which a input frame picture is recorded the input luminance (Y) and chrominance (U/V) of an interlaced nominally 50 Hz field-rate television signal (such as a PAL, SECAM, 50 Hz NTSC, 50 Hz HDTV or 50 Hz monochrome television) and the sync stripper 4 (Fig. 1, col. 3, line 58 to col. 4, line 23), 2) the claimed an input switching part transmitting a input frame picture to be displayed, to the input frame memory on the basis of the input picture signal and the input synchronizing signal is met by the switch 18 (Fig. 2A, col. 7, lines 41-67), 3) the claimed a picture converting part producing output frame pictures from input frame pictures, which have been recorded in the input frame memory, by producing an interpolated picture or inserting a black raster picture or thinning out the frame pictures, between frame

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pictures corresponding to the picture information, on the basis of the picture information and the input synchronizing signal and the output synchronizing signal; an output frame memory recording therein the output frame pictures is met by the two-frame ("double frame buffer") memory 8 (Figs. 1 and 2, col. 6, line 38 to col. 8, line 59), and 4) the claimed an output control switching part taking the output picture signal and the output synchronizing signal out of the output frame pictures, which have been recorded in the output frame memory, to transmit the signals to the display device the switch 19 (Fig. 2A, col. 7, lines 41-67).

However, Faroudja et al explicitly does not disclose the claimed a black raster picture producing part in which a black raster picture has been produced or stored.

The capability of using black raster picture for produced or stored is old and well known in the art. Therefore, the Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the old and well known of using black raster picture into Faroudja et al's system in order to increase flexibility of the system to convert the television signal to a form suitable for display on a progressively-scanned variable-frame rate high-resolution monitor of the type typical associated with a computer by using the black raster picture.

In considering claim 15, the claimed wherein the picture information includes information which indicates whether the picture to be displayed is a moving picture or a still picture, and the method further comprises discriminating

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whether the picture to be displayed is a moving picture or a still picture is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37) of Faroudja et al.

In considering claim 16, Faroudja et al discloses all the claimed subject matter, note 1) the claimed wherein the discriminating comprises: incorporating frame pictures to be displayed, at regular intervals on the basis of the input picture signal and the input synchronizing signal is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate or causes the input frame to be skip when the output frame rate is slower than the input frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59), and 2) the claimed obtaining the correlation between two fame pictures which have been continuously incorporated, the method discriminating whether the picture to be displayed is a moving picture or a still picture on the basis of the correlation result is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video

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source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 17, Faroudja et al discloses all the claimed subject matter, note 1) the claimed wherein the motion discriminating part comprises: a switching part incorporating input frame pictures to be displayed, at regular intervals on the basis of the input picture signal and input synchronizing signal is met by the switch 18 (Fig. 2A, col. 7, lines 41-67), 2) the claimed a plurality of frame memories for storing therein the input frame pictures which have been incorporated by the switching part; means for calculating a differential signal between two input frame pictures which have been continuously incorporated is met by the two-frame ("double frame buffer") memory 8 (Figs. 1 and 2, col. 6, line 38 to col. 8, line 59), and 3) the claimed means for discriminating whether the input frame picture to be displayed is a moving picture or a still picture on the basis of the results of the calculation is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "o" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

In considering claim 18, Faroudja et al discloses all the claimed subject matter, note 1) the claimed wherein the picture signal converting part compares the refresh rate of the input frame pictures with the refresh rate of the output

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frame pictures is met by the collision detector 14 (Fig. 1, col. 6, line 66 to col. 7, line 40), 2) the claimed outputs the input frame pictures as the output frame picture, or outputs the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the input frame pictures is equal to the refresh rate of the output frame pictures is met by the deinterlacer 2 which produces progressively-scanned video having a frame rate the same as the nominally 60 Hz interlaced field rate (Fig. 1, col. 4, line 24 to col. 6, line 22), 3) the claimed produces an interpolated picture between the input frame pictures, or outputs the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the output frame pictures is higher than the refresh rate of the input frame pictures is met by the collision detector 14 which causes the odd frame memory or the even frame memory to read twice when the input frame rate is slower than the output frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59), and 4) the claimed thins out the input frame pictures, or produces an interpolated picture between the input frame pictures, or outputs the input frame pictures, between which the black raster picture is inserted, as the output frame pictures, when the refresh rate of the output frame pictures is lower than the refresh rate of the input frame pictures is met by the collision detector 14 which causes the input frame to be skip when the output frame rate is slower than the input frame rate (Fig. 2A, col. 7, line 41 to col. 8, line 59).

In considering claim 19, the claimed wherein the picture signal converting part produces the output frame pictures from the input frame pictures on the

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basis of a moving or still picture indicating signal, which indicates whether the kind of a picture to be displayed on the display device is a moving picture or a still picture, and the output of the motion discriminating part is met by the deinterlacer 2 which may include a film-source detector or a film-source identification signal may be transmitted along with the television signal and the video field of the same parity in adjacent video frames are compared, when motion is present, a distinctive repeating pattern is obtained only if the video source is film (i.e., 1101111011, etc., where "1" indicates motion and "0" indicates no motion) (Fig. 1, col. 4, line 24 to col. 6, line 37).

Claim 20 is rejected for the same reason as discussed in claim 14 and further the claimed a display device displaying a picture while changing the picture every frame picture is met by the LCD portable computer (col. 8, lines 29-59).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kondo et al. (US Patent No. 6,483,545 B1) disclose information signal processing apparatus, picture information converting apparatus, and picture displaying apparatus.

Ledinh et al. (US Patent No. 5,936,676) disclose apparatus and method for line interpolating an interlaced video signal.

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Lee et al. (US Patent No. 5,428,397) disclose video format conversion apparatus for converting interlaced video format into progressive video format using motion-compensation.

Sugiyama et al (US Patent No. 5,249,037) disclose image signal correction circuit and image signal processor using the circuit.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Trang U. Tran** whose telephone number is **(703) 305-0090**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W. Miller**, can be reached at **(703) 305-4795**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 308-HELP.

TT TT
November 4, 2003


MICHAEL H. LEE
PRIMARY EXAMINER